

# Pentagon Increases Stress On Satellite Survivability

Washington—Defense Dept.'s expanded space program budget request for Fiscal 1975 reflects increased emphasis on survivability of military satellites and early warning of any attempt to attack those spacecraft, as well as of a missile attack on the U. S.

The broad scope of the Pentagon's effort to protect military spacecraft on which the Defense Dept. depends for early warning of ballistic missile attack, for strategic and tactical communications and other key functions, was disclosed by Malcolm R. Currie, director of Defense research and engineering, in his prepared statement for the Senate Aeronautical and Space Sciences Committee.

The effort includes:

- SPADATS (space detection and tracking system) capability will be expanded to enable it to provide routine surveillance coverage out to geosynchronous (22,300 mi.) altitudes. Presently

such coverage extends only out to about 3,000 mi. The objective is to enable the North American Air Defense Command to detect and track any enemy attempt to launch a killer-satellite attack against a U. S. military spacecraft.

- Feasibility is under investigation of using spaceborne optical sensors, operating in the long-wavelength infrared and visible part of the spectrum, for space surveillance to eventually replace many existing SPADATS ground-based radars, Currie said.

- Prototype of a spacecraft-mounted impact sensor, which is designed to warn of an attack by a killer satellite, is nearly complete. It is expected to be installed and launched in an early warning satellite for experimental evaluation.

- Two experimental communications satellites, especially designed for increased survivability by Lincoln Laboratory, are scheduled for launch in March,

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1975. The LES-8 and LES-9 spacecraft will employ radioisotope thermoelectric generators instead of solar cell arrays, which are especially vulnerable to attack. Additionally, the spacecraft will carry an extremely low-drift gyroscope for attitude control "to virtually eliminate the dependence on external sensors which are vulnerable to nuclear effects," according to Currie. The satellite communications will be at K-band.

Currie said that during the past year "most of our new space system programs" have been required to "evaluate the threat and incorporate the appropriate survivability measures as design specifications."

The Pentagon official said that a continued effort will be made during Fiscal 1975 to expand the surveillance coverage of individual early warning satellites, which would reduce the total number required.

Fiscal 1975 funds also will be used to continue development of a simplified processing station, a small, mobile read-out terminal for early warning satellite information. At present, all early warning satellite data funnels through USAF's Aerospace Data Facility, located near Denver, prior to being routed to NORAD at Colorado Springs, the Strategic Air Command headquarters in Omaha, and National Command Center in Washington.

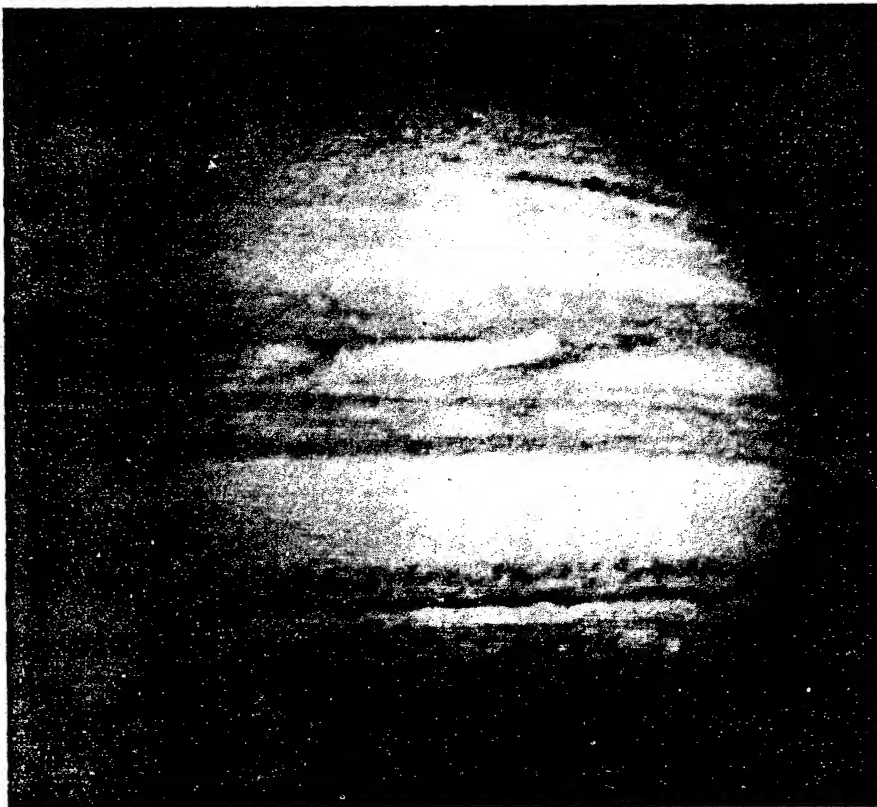
Currie disclosed that tentative agreement has been reached with the National Oceanic and Atmospheric Administration to adopt for civil purposes the newest version of USAF's weather satellite, which will be used in the Defense Meteorological Satellite Program. This version is the Block-5 design, the first of which is expected to be launched in December. Although the Pentagon and NOAA will each be responsible for operating its own satellites, the spacecraft design will be basically the same and both will be launched using General Dynamics Atlas-F boosters, Currie said.

The Navy, which earlier demonstrated the ability to use a shipboard terminal to obtain cloud-cover imagery from the Defense meteorological satellites, plans to install a prototype terminal on the USS John F. Kennedy this year.

The Navy will procure an additional terminal during Fiscal 1975 and plans to install such terminals on all of its carriers during the next five years, Currie indicated.

Currie said the Pentagon planned to spend approximately \$3 million in Fiscal 1975 to select the optimum configuration and initiate detailed specifications for the space tug needed to boost military spacecraft into geosynchronous and subsynchronous orbit from the shuttle.

He said facilities would be added at Vandenberg AFB, Calif., to enable that facility to launch the space shuttle by December, 1982.



## New Jupiter Features Revealed

Pioneer 10 image of Jupiter in red light, made while the spacecraft was 1.121 million mi. away from the planet, shows never-before-seen features in Jupiter's cloud cover. Red light image revealed a long cloud formation with a nucleus at one end. Near the nucleus, cloud particles appear to be swirling in a thermally driven vortex from below. The vortex then spread out into an atmospheric stream more than 40,000 mi. long that has a slightly